REVISION OF AUSTRALIAN SPECIES OF THE GENUS *HOLCONIA* THORELL (HETEROPODIDAE: ARANEAE)

D. B. HIRST

HIRST, D. B. 1991. Revision of Australian species of the genus *Holconia* Thorell (Heteropodidae: Araneae). *Rec. S. Aust. Mus.* 24(2): 91-109.

Australian species of the genus *Holconia* Thorell, 1877 are revised. *Holconia hirsuta* (L. Koch), *H. immanis* (L. Koch), *H. insignis* (Thorell) type species, and *H. nigrigularis* (Simon) are valid taxa. *Holconia subdola* Thorell is a synonym of *H. hirsuta*. *Isopeda simoni* Rainbow is a synonym of *H. nigrigularis*. *Mygale whitei* Bonnet is synonymised with *H. immanis*. The following new species are described: *H. colberti*, *H. flindersi*, *H. murrayensis*, *H. neglecta* and *H. westralia*.

D. B. Hirst, South Australian Museum, North Terrace, Adelaide, South Australia 5000. Manuscript received 13 November 1989.

This is the fourth part of a revision of the Australian Heteropodidae excluding *Heteropoda* Latreille, 1804. Hirst (1990) revalidated the genus *Holconia* when outlining the genera and relimiting Australasian species involved in the genus *Isopeda (sensu lato)*. Here, Australian taxa of the genus *Holconia* are revised.

Koch (1867) described *Delena immanis* from Brisbane, at that time understandably selecting that genus as morphologically similar. Thorell (1870) erected the genus *Voconia*, for a new species, *V. insignis*. Koch (1875) transferred *immanis* to *Voconia* and described *V. dolosa*. Koch's understanding of that genus is questionable as at the same time he described *Isopeda hirsuta*, a species which should have been difficult to separate from *dolosa* or *insignis*, the latter which he redescribed. Finding *Voconia* preoccupied, Thorell (1877) replaced that name with *Holconia*. Three more species, *H. subdola*, *H. armillata* and *H. beccarii* were described by Thorell (1881, 1887, 1892). The latter two, being non-Australian, are not included in this revision. Hogg (1902) saw no reason for retaining *Holconia*, and synonymised it with *Isopeda*. Two further species, *I. nigrigularis* and *I. woodwardi* were described by Simon (1908). As the latter name was a homonym of *Isopeda woodwardi* Hogg, Rainbow (1911) replaced this with *simoni*. Little has been produced in the following years concerning this group of heteropodids regarded here as *Holconia*, but Bonnet (1957) proposed the name *Mygale whitei* for a species briefly described and illustrated by J. White (1790) and named only 'White-jointed spider'. Main (1985: 48) noted that the species was 'a sparassid (Sparassidae - Heteropodidae)'. The illustrations are undoubtedly of *H. immanis* and Bonnet probably chose the genus *Mygale* solely on the reference to that species as 'Mygale de White' by Walckenaer (1837).

Materials and Methods

Measurements were made with an eyepiece graticule on a Wild microscope and are given in millimetres except eye diameters, interspaces and MOQ (median ocular quadrangle) dimensions which are expressed as relative to the diameter of an AME. Other materials and methods are given in Hirst (1989). Acronyms are: AM - Australian Museum, Sydney; ANIC - Australian National Insect Collection, Canberra; BYM - Dr B.Y. Main, Zoology Department, University of Western Australia, Nedlands; MCG - Museo Civico di Storia Naturale 'Giacomo Doria', Genoa; NHMW - Naturhistorisches Museum, Wien; NHRM - Naturhistoriska Riksmuseum, Stockholm; NMV - Museum of Victoria, Melbourne; NTM - Northern Territory Museum, Darwin; QM - Queensland Museum, Brisbane; SAMA - South Australian Museum, Adelaide; SMNS - Stadtliches Museum für Naturkunde, Stuttgart; WAM - Western Australian Museum, Perth; ZMB - Museum für Naturkunde an der Universität Humboldt zu Berlin; ZMH - Zoologisches Museum, Hamburg.

Discussion

The term 'subembolic apophysis' (Figs 1-7, 15) was introduced (Hirst 1990) to describe the apophysis found in species of *Holconia* and distinguishing it from the tegular apophysis found in several other genera of the Deleninae. Those structures are probably homologous in function. With the exception of *H. nigrigularis* the subembolic apophysis bridges a 'gap' between the embolic base and the tegulum. Rising prodistally from the embolic base to a rounded point or 'knob', the subembolic apophysis is connected to the tegulum on the prodorsal side of the apophysis.

Holconia nigrigularis differs in having the subembolic apophysis rising more prolaterally on the embolic base (Fig. 14) adjacent to its junction with the tegulum, and not being fixed to the tegulum. This state also occurs in one species of a sister genus (Hirst in prep.) but then is smaller and accompanied by a reduced tegular apophysis.

A distinctive character of female *Holconia* species required a second term, the 'epigynal sclerite' (Fig. 25) in reference to a lateral convexity in the posterior half of the epigynum (Hirst 1990). The epigynal sclerite is a narrow to broad extension of the lateral rim of the epigynum over the postero-lateral corner of the fossa. In *Isopeda* and related genera the lateral rim turns sharply downwards to produce a concavity adjacent to the postero-lateral edge of the fossa. The epigynal sclerite is a useful diagnostic female character when used with epigynum shape and number of insemination duct coils.

Holconia Thorell

Voconia Thorell, 1870: 382.
Holconia Thorell, 1877: 485 (nom. nov. for *Voconia* Thorell, pre-occupied). Hirst, 1990: 17.
Isopeda: Hogg, 1902: 429 (in part).

Diagnosis

Males with subembolic apophysis. Tegulum prodistally rounded without apophysis. Female epigynum with convex epigynal sclerite extending over posterior lateral corner of fossa.

Description

Large spiders, carapace length often 9-15 mm, 6-9 times longer than high, highest posterior to ocular area; caput 'U' shaped; fovea long, narrow, deep. Anterior eye row slightly recurved; line drawn behind posterior eyes recurved; ALE largest; PLE often subequal to AME; PME smallest, low-domed, barely, or not visible in lateral view; AME closer to each other than to ALE. Clypeus 1/8 to 1/2 width of AME. Cheliceral groove with two promarginal teeth; four or five retromarginal teeth, distal tooth subequal or rather equal to subdistal tooth except in *H. immanis* in which it is larger. Labium barely wider than long, apex somewhat truncate. Sternum longer than wide, truncate anteriorly, broadest mid-length between second coxae, narrowing to a point between fourth coxae. Leg I, when outstretched alongside leg II, reaches to mid-length of metatarsus II, rarely to near distal end of metatarsus II. Three pairs of ventral spines on all tibiae with distal pair adjacent to articulation with metatarsi. Scopula on all metatarsi and tarsi, sparse on metatarsi IV, largely replaced by stout bristles. Abdomen usually with pattern of large ill-defined brown or blackish patches, broadly ovate in its normal condition, flattened dorso-ventrally. Male palpal tibial apophysis subequal in length to palp tibia, relatively straight, lanceolate, usually with incurved apex; membranous support on inner edge of apophysis base forms a somewhat continuous straight line with apophysis. Tegular apophysis absent. Embolic base with prodistal knob-like subembolic apophysis connected to tegulum, or semicircular and not connected to tegulum; embolic base rarely with granulated area, when present appears as a series of fine ridging (Fig. 14); area between conductor base and embolus broad, depressed (Fig. 14). Embolus with 7½ to 11½ coils in distal half of cymbium. Coil stack almost width of cymbium; first complete coil smaller than several subsequent coils, difficult to see in ventral view without manipulation of embolus. Tip of embolus constricts and tapers to a fine point in the last half a turn or less. Female epigynum large, roughly oblong but broader posteriorly; sclerotised lateral rims often somewhat parallel in anterior half; in posterior half a convex extension of the lateral rim, the epigynal sclerite, extends partly over fossa. Fossa smooth, rarely darkly pigmented, often narrower and somewhat truncate posteriorly, posterior section often with depressed or raised areas. Fossa and sclerotised rim lack setae. Vulva with paired insemination ducts coiled 8-11 times; spermathecae with moderately long, usually curved, spermathecal sacs.

Type species

Voconia insignis Thorell, 1870.

Remarks

Spermathecal sacs may be widely separated (fig. 10, Hirst 1990) or close together (Fig. 23). They appear to be intraspecifically variable and diagnostically useful only at generic level. Colouration of *H. immanis* and *H. nigrigularis* is distinctive but other species are uniformly coloured. Spination and leg lengths are very similar within the genus. Leg ratios (leg length / carapace length) are also intraspecifically variable. Leg lengths and spination are given for the type species, *Holconia insignis* in Hirst (1990).

Four species groups or sister groups are outlined within the genus, but these are equivocal as definitions of the groups alter if different character combinations are used. *Holconia nigrigularis* lacks the fixed subembolic apophysis of other species and has a much flatter carapace which isolate this species from others in the genus. On the other hand, the presence of four retromarginal cheliceral teeth and a broader male palpal tibial apophysis ally this species with a further group, comprising *H. colberti* and *H. westralia*, but which has more coils in the

embolus and insemination duct as well as a relatively higher carapace, and in the case of *H. colberti*, occasionally five retromarginal cheliceral teeth.

Grouping of remaining species may be determined by the degree of coiling of the embolus or insemination ducts and carapace height. The largest group comprises *H. insignis, H. flindersi, H. murrayensis* and *H. immanis*. While *H. immanis* is easily diagnosed by its distinctive pattern and larger subembolic apophysis, other species in this group are difficult to separate. This is further complicated by the sympatric occurrence in part of the distributions of *insignis/murrayensis* and *murrayensis/flindersi* (Fig. 36). Grouping by another character, the distal retromarginal cheliceral tooth, isolates *H. immanis* from all other *Holconia* species in having that tooth the largest.

Holconia hirsuta and *H. neglecta* can be grouped on their reduced embolic and insemination duct coiling but may well be included in the previous group. *H. hirsuta* differs in the marginally greater spacing between the median and subdistal retromarginal teeth (Fig. 20), in which it is paralleled by *H. westralia* (Fig. 21), but a similar spacing of those teeth is occasionally found in *H. insignis* (Fig. 19).

KEY TO THE SPECIES OF *HOLCONIA*

1 — Abdomen with ventral pattern 2
— Abdomen lacks ventral pattern 3

2 — Abdomen without strong dorsal pattern, venter with ill-defined grey-black patch. Carapace very flat, depressed medially. Clypeus less than ¼ width of AME. Embolic base with low rounded subembolic apophysis. Epigynum broad and rounded; epigynal sclerite narrow, short to moderate length ..... *nigrigularis* (Simon)
— Abdomen with conspicuous black stripe in anterior half; venter with blackish badge markings, pale bordered. Distal retromarginal cheliceral tooth largest. Subembolic apophysis high, knob-like. Epigynum lateral rims slightly diverging; epigynal sclerite broad, long ..... *immanis* (L. Koch)

3 — Carapace low, about 7–8 times longer than high; clypeus about ½ width of AME. 5 retromarginal cheliceral teeth 4
— Carapace higher, about 6 times longer than high; clypeus ½ width of AME. Usually with 4 retromarginal cheliceral teeth 8

4 — Males with 7½ to 8 embolic coils. Females with a similar number of insemination duct coils ... 5
— Males with 9 to 10 embolic coils. Females with a similar number of insemination duct coils ... 6

5 — Males with small subembolic apophysis. Female epigynum with somewhat parallel lateral rims at first then sharply diverging; epigynal sclerite small, short ..... *hirsuta* (L. Koch)
— Males unknown. Females with 8 insemination duct coils; epigynum with gradually diverging lateral sides, broad posteriorly; epigynal sclerite narrow at posterior only ..... *neglecta* sp. nov.

6 — Males with 9½ to 10 embolic coils. Female with about 10 insemination duct coils 7
— Males with 9 to 9¼, rarely to 9½ embolic coils. Female with about 9 insemination duct coils; epigynum with anterior half of lateral side slightly diverging; epigynal sclerite less than ½ length of epigynum ..... *murrayensis* sp. nov.

7 — Male subembolic apophysis broad at apex. Female epigynum with anterior section of lateral side parallel over ½ length of epigynum; epigynal sclerite 2/5 length of epigynum ..... *flindersi* sp. nov.
— Male subembolic apophysis narrow at apex. Female epigynum with anterior section of lateral side slightly diverging for ½ length of epigynum; epigynal sclerite usually ½ length of epigynum ..... *insignis* (Thorell)

8 — Male with 9¾ to 10¼ embolic coils; subembolic apophysis smallish. Female epigynal sclerite long, narrow ..... *westralia* sp. nov.
— Males with 11 to 11½ embolic coils; subembolic apophysis broad. Female epigynal sclerite short, broad ..... *colberti* sp. nov.

The *insignis* Group

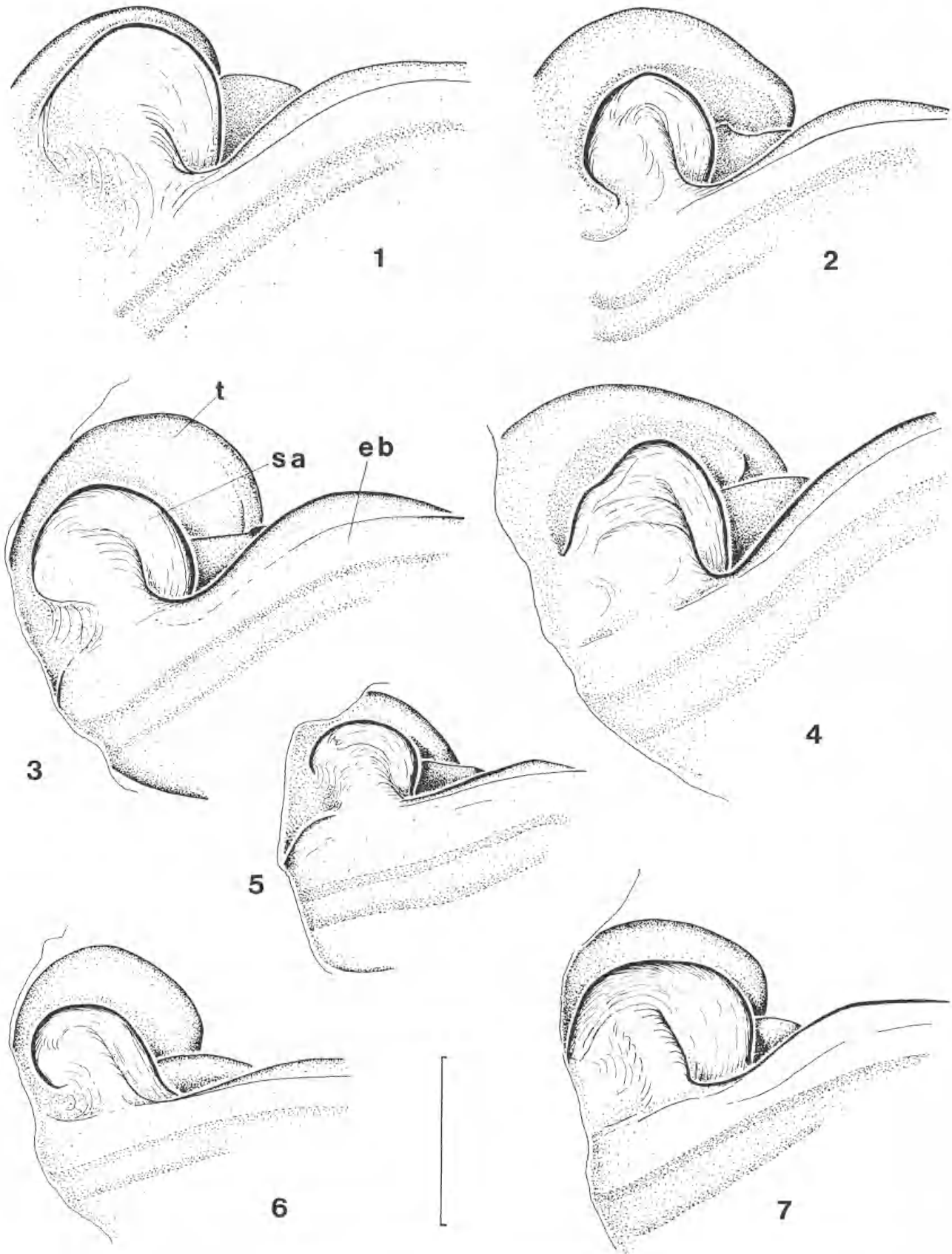
Clypeus width about ½ diameter of AME. Male with 9 to 10 embolus coils; subembolic apophysis largish. Female epigynum relatively narrow to broad; lateral rims not diverging greatly to posterior. *H. insignis, H. flindersi, H. murrayensis* and *H. immanis* are included in this grouping although the last differs in having a larger distal retromarginal cheliceral tooth and possesses a distinctive pattern. In other respects *H. immanis* is most similar to *H. insignis*. The group has an eastern and south-eastern distribution.

Holconia insignis (Thorell)
(Figs 2, 19, 24, 36)

Voconia insignis Thorell, 1870: 383. Syntypes ♂ and ♀, Queensland, Australia, Pessler, NHRM (Thorell Coll.), examined.
Holconia insignis: Karsch, 1878: 791. Hirst, 1990: 18, figs 6–10, table 4.
Isopeda insignis: Hogg, 1902: 432.

Diagnosis

Male subembolic apophysis rounded, apex curved slightly to venter; embolus with 9½ to 10 coils. Female epigynum broad anteriorly; lateral rims somewhat parallel or slightly diverging in anterior half, broadest posteriorly; epigynal sclerite long, usually greater than half length of fossa. Insemination ducts with about 10 coils (Fig. 24).



FIGURES 1–7. Subembolic apophysis of *Holconia* males: 1, *H. immanis* (L. Koch), SAMA N1988515; 2, *H. insignis* (Thorell), SAMA N1988522; 3, *H. flindersi*, holotype; 4, *H. murrayensis*, holotype; 5, *H. hirsuta* (L. Koch), QM S12592; 6, *H. westralia*, holotype; 7, *H. colberti*, holotype. eb, embolic base; sa, subembolic apophysis; t, tegulum. Scale line 0.5mm.

Variation

Carapace length of males, 9.68–12.90, mean 11.78 (n = 8), 2 with 9½ embolus coils, 4 with 9¾ and 2 with almost 10 coils. Carapace length of females, 12.10–15.80, mean 13.44 (n = 7). Usually with 5 retromarginal cheliceral teeth; distal tooth often angled more anteriorly, spaced about a tooth width apart and rather equal or subequal to subdistal tooth (Fig. 19).

Distribution

Occurs in Queensland and New South Wales in and west of the Great Dividing Range from near Rockhampton to south of Sydney. In Queensland it occurs westward to Injune and, in New South Wales, to Cobar and Lake Cowal (Fig. 36).

Other material examined

Queensland: ♀, 2 juv., Banana, 24°28′S, 150°08′E, AM KS19737; ♀, Condamine, 26°56′S, 150°08′E, AM KS19646; ♀, Eidsvold, 25°22′S, 151°07′E, QM S12595; ♀, same locality, SAMA N1988520; 2 juv., Enfield Station, 27°06′S, 151°02′E, QM; ♀, Goondiwindi, 28°33′S, 150°18′E, QM S12596; ♂, ♀, Injune, 25°51′S, 148°34′E, QM 14143; juv., Kroombit Tops, 24°26′S, 150°43′E, QM; 3 ♀♀, 6 juv., Lake Nuga Nuga, 25°01′S, 148°42′E, QM S12597; juv., Marlaybrook 26°54′S, 151°36′E, QM; ♂, Moombah, *ca* 27°59′S, 149°18′E, QM S12598; juv., Mt Archer, Kilcoy, 26°59′S, 152°38′E, QM; ♂, Ottley, 28°20′S, 149°04′E, QM 14142; ♀, St George, 100 km S of, AM KS19736; ♀, Theodore, 24°57′S, 150°05′E, QM; ♂, Wallumbilla, 26°35′S, 149°11′E, QM 14144. **New South Wales:** ♀, Bathurst, 33°25′S, 149°35′E, AM KS16701; ♂, Bonnet Bay, Sydney, AM KS19675; 3 juv., Brooklana, 30°16′S, 152°53′E, AM KS19677–8; ♀, Crowther, 34°06′S, 148°30′E, AM KS19651; ♂, Lake Cowal, 33°36′S, 147°26′E, ANIC; ♀, Loftus, 34°03′S, 151°03′E, AM KS16693; juv., Marrickville, Sydney, AM KS119649; ♂, Nyngan, 31°34′S, 147°12′E, AM KS16478; ♂, penult, ♀, Pilliga Scrub, 30°40′S, 148°50′E, SAMA N1988522–3; penult. ♀, Ryde, Sydney, AM KS13799; ♀, Sydney, 33°53′S, 151°13′E, AM KS16705; ♀, Woronora, Sydney, AM KS16695; ♀, Young, 34°19′S, 148°18′E, AM KS16598.

Holconia flindersi sp. nov.
(Figs 3, 9, 26, 36)

Types

Holotype: ♂, Wilmington, 32°39′S, 138°06′E, South Australia, March 1986, H. Kairl, SAMA N1989264.

Allotype: ♀, Warren Gorge, 32°11′S, 138°00′E, South Australia, 19. vi. 1988, G. and H. Kairl, SAMA N1988559.

Paratypes: ♀, Creekbed S of Woolshed Flat, Pichi Richi Pass, 32°28′S, 137°58′E, South Australia, 27. iv. 1987, D. Hirst, SAMA N1988544; ♂, same data, SAMA N1988545; ♀, Mambray Creek, 32°40′S, 138°02′E, South Australia, 24. iv. 1972, P. Martinson, SAMA N1988546.

Diagnosis

Most similar to *insignis*, separated in the male by the straighter palpal tibial apophysis and thicker more upright subembolic apophysis, and in the female by the longer parallel sided anterior section of the epigynum and shorter, narrower epigynal sclerite.

Holotype male

CL 10.32, CW 10.13. AL 9.80, AW 6.85.

Colour in alcohol: Carapace orange-brown with brown suffusion; caput darker orange-red. Brown-black setae form cross-banding posterior to caput; whitish setae in ocular area. Chelicerae reddish with yellowish upright setae; proximally with adpressed white setae. Maxillae and labium dark brown. Sternum yellow-brown; long greyish setae. Legs yellow-brown; blackish suffusion proventrally on femur I; short blackish setae at proximal ends of anterior femora and tibiae and around spine bases of femora prolaterally; white setae ventrally on femora, patellae and medially on tibiae. Abdomen yellowish with brown-black patches of setae forming transverse banded pattern, anterior band broken by yellowish streak; venter yellowish with orangish setae.

Eyes: AME 0.68. AME: ALE: PME: PLE = 1: 1.16: 0.69: 1.15. Interspaces: AME–AME 0.37, AME–ALE 0.38, PME–PME 1.38, PME–PLE 1.59, AME–PME 0.85, ALE–PLE 1.06. MOQ, aw: pw: l = 2.37: 2.76: 2.44. Width of clypeus to AME 0.29. Chelicerae: retromarginal teeth 5, similar to *insignis*. Labium: L 1.92, W 2.11. Sternum: L 5.53, W 4.59. Legs: anterior leg ratios I = 5.6, II = 6.0.

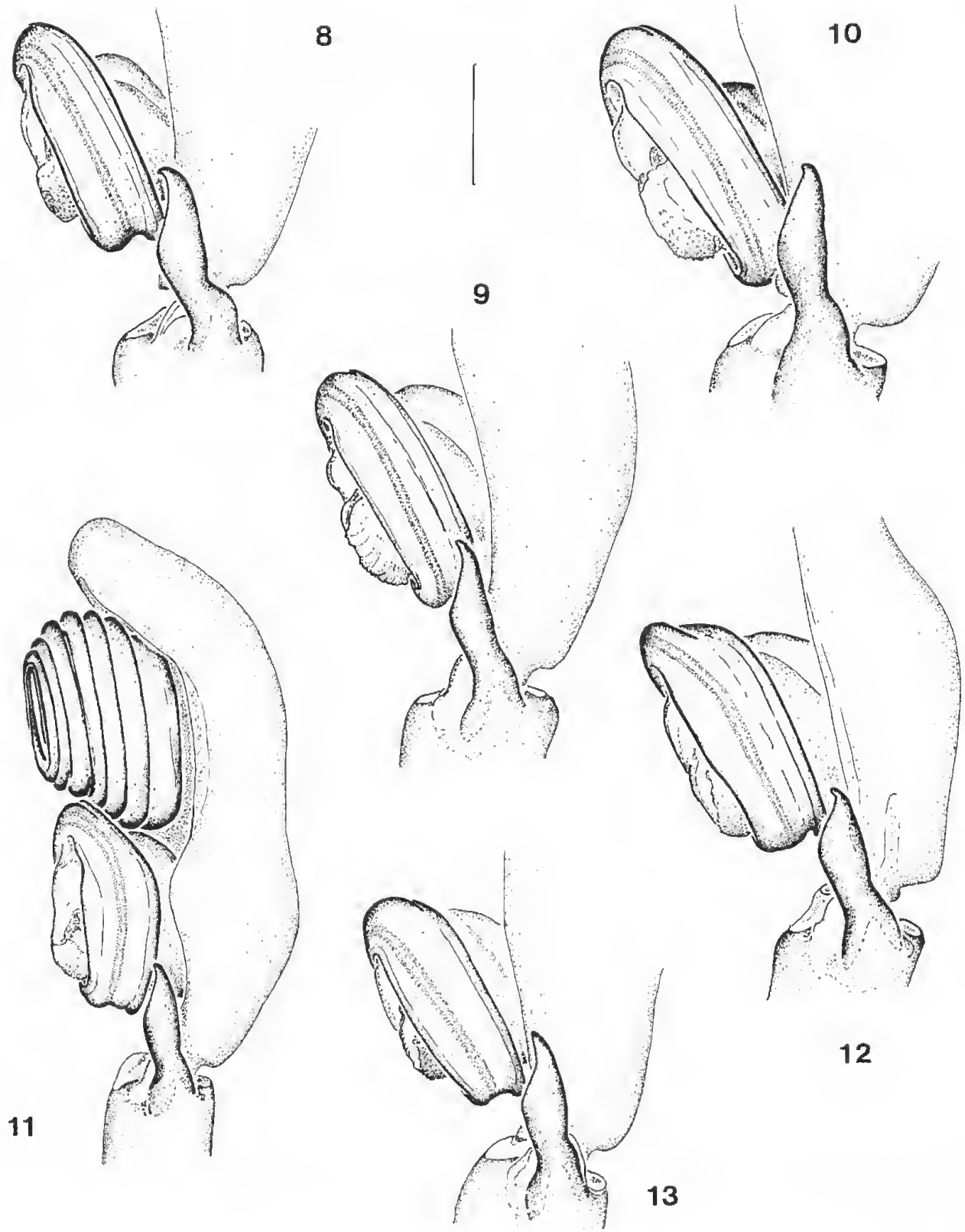
Palps: Tibial apophysis relatively straight. Embolus with 9¾ coils.

Allotype female (as male except as follows)

CL 12.35, CW 11.89. AL 14.95, AW 11.40.

Eyes: AME 0.74. AME: ALE: PME: PLE = 1: 1.16: 0.69: 1.16. Interspaces: AME–AME 0.39, AME–ALE 0.54, PME–PME 1.43, PME–PLE 1.72, AME–PME 0.91, ALE–PLE 1.22. MOQ, aw: pw: l = 2.39: 2.81: 2.54. Width of clypeus to AME 0.32. Labium: L 2.11, W 2.66. Sternum: L 6.53, W 5.30. Legs: anterior leg ratios I = 4.2, II = 5.0.

Epigynum: lateral sides somewhat parallel in anterior section for more than half length of fossa; epigynal sclerite moderately large, curved, extending less than ½ length of fossa.



FIGURES 8–13. *Holconia* males. 8–10, left palpal tibial apophysis and proximal portion of tarsus, retrolateral: 8, *H. immanis* (L. Koch), SAMA NI988515; 9, *H. flindersi*, holotype; 10, *H. murrayensis*, holotype. 11, left palpal tibial apophysis and whole tarsus of holotype *H. hirsuta* (L. Koch). 12–13, left palpal tibial apophysis and proximal portion of tarsus: 12, *H. colberti*, holotype; 13, *H. westralia*, holotype. Scale line 0.5mm.

Variation

Carapace length of males, 10.02–13.41, mean 11.43 (n = 6). Embolus coils 9½ to 10. Carapace length of females, 11.72–14.78, mean 13.14 (n = 20). Retromarginal cheliceral teeth usually 5, occasionally with 4 on one chelicera. Insemination duct coils about 9½ to 10.

Distribution and remarks

Occurs throughout the Flinders Ranges in South Australia, east to Broken Hill in New South Wales and Meringur in the north-west corner of Victoria (Fig. 36). It is frequently found near creeks on *Eucalyptus camaldulensis*, and often under *Casuarina* bark when away from waterways.

Other material examined

South Australia: ♀, Arcoona Creek, 30°28′S, 138°58′E, SAMA N1989265; ♀, Gadnina Station, *ca* 30°25′S, 139°05′E, SAMA N1988561; ♀, Hawker, 31°53′S, 138°25′E, SAMA N1988550; ♀, Holowilena Station, 31°53′S, 138°50′E, SAMA N1990275; ♀, Mambray Creek, 32°49′S, 138°05′E, SAMA N1988546; 2 ♂♂, penult. ♀, Melrose, 32°50′S, 138°11′E, SAMA N198854!–3; penult. ♀, Mooloolo, 30°59′S, 138°35′E, SAMA N1989266; juv., Mt Serle, 30°30′S, 138°54′E, SAMA N1989267; 2 ♀♀, 'North' (no exact locality), SAMA N1988497; ♂, Oakbank Station, 33°03′S, 140°35′E, SAMA N1988563; ♀, Orroroo, 32°44′S, 138°37′E, SAMA N1989268; ♀, Quorn, 32°21′S, 138°02′E, SAMA N1988549; ♂, ♀, Sturt Vale Station, 33°15′S, 140°02′E, SAMA N1988564–5; 8 ♀♀, penult. ♂, Wilpena, 31°30′S, 139°19′E, SAMA N1988552–60; ♂, ♀, Wirrealpa, 31°08′S, 138°58′E, SAMA N1988547–8; ♀, Yunta Dam, 32°37′S, 139°34′E, SAMA N1988562. **New South Wales:** ♀, Broken Hill, 31°58′S, 141°27′E, SAMA N1988521; ♀, same locality, AM KS5094; ♀, Wangumma, 34°09′S, 141°27′E, NMV. **Victoria:** ♂, Meringur, 34°24′S, 141°25′E, NMV.

Holconia murrayensis sp. nov.
(Figs 4, 10, 27–28, 36)

Types

Holotype: ♂, Mildura, 34°11′S, 142°10′E, Victoria, July 1955, Favalora, NMV K-0917.

Allotype: ♀, Nampoo Stn, Lake Victoria, 34°03′S, 141°10′E, SW New South Wales, under bark of red gum, 26. vi. 1967, R.R. Blackwood, NMV K-0918.

Paratypes: ♂, Balaklava Gliding Club Airfield, *ca* 2 km N of Whitwarta, 34°05′S, 138°20′E, South Australia, 28. i. 1989, A. Horton, SAMA N1989276; ♀, rafters of shack, few km S of Morgan on River Murray, 34°02′S, 139°40′E, South Australia, 28. xii. 1978, A. Edwards, SAMA N1988538.

Diagnosis

From *insignis* and *flindersi* by the male having a lower embolic coil number of 9 to less than 9½ and subembolic apophysis with slightly larger apex. Female with about 9 insemination duct coils.

Holotype male

CL 14.21, CW 13.92, AL 17.40, AW 11.25.

Colour in alcohol: Carapace reddish, lateral and posterior edges orange-red; caput dark reddish. Setae brownish medially; whitish adpressed setae on caput margins and posterior to ocular area; posterior half of caput with yellow-orangish adpressed setae. Chelicerae dark red-brown to blackish; setae yellow-brown. Maxillae and labium red-brown. Sternum orange-brown. Coxae yellow to orange-brown. Legs orange-red; dense white setae on femora dorsally, venter of patellae and tibiae. Abdomen yellowish with brown patches of setae divided anteriorly by yellow-brown streak. Venter yellow.

Eyes: AME 0.82, AME: ALE; PME: PLE = 1: 1.20: 0.71: 1.12. Interspaces: AME-AME 0.41, AME-ALE 0.51, PME-PME 1.34, PME-PLE 1.78, AME-PME 1, ALE-PLE 1.12. MOQ, aw: pw: l = 2.41: 2.76: 2.61. Width of clypeus to AME 0.37. Chelicerae: retromarginal teeth 5; distal and subdistal teeth separated by ½ tooth width. Labium: L 2.41, W 2.64. Sternum: L 7.42, W 6.28. Legs: anterior leg ratios I = 4.6, II = 5.5.

Palps: Subembolic apophysis broader distally and less curved than in *insignis*. Embolus with 9 coils.

Allotype female (as holotype male except as follows)

CL 14.35, CW 13.89, AL 16.25, AW 12.70.

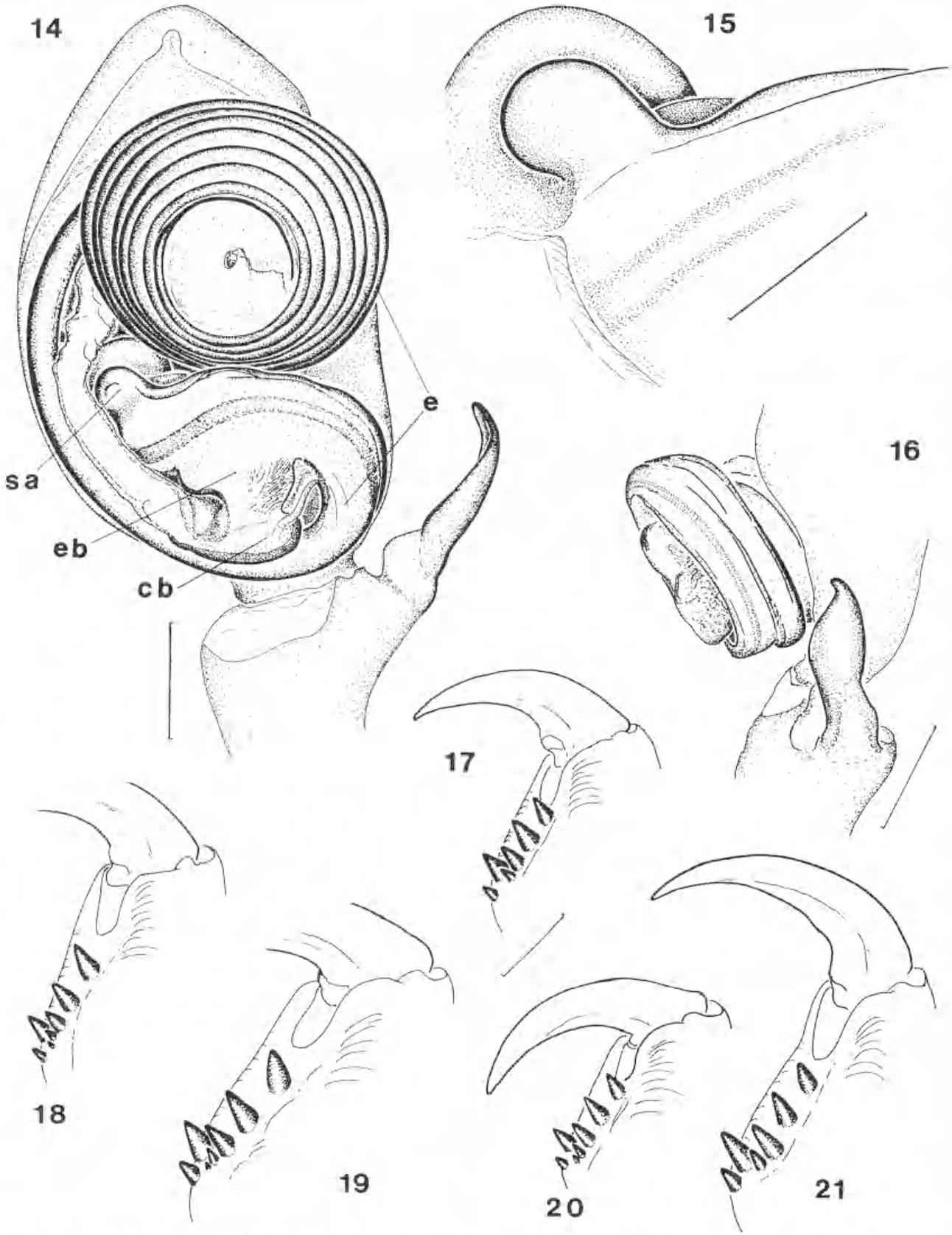
Colour in alcohol: Generally darker than male; legs reddish from patellae to metatarsi. Abdomen with anterior yellow-brown streak.

Eyes: AME 0.81, AME: ALE; PME: PLE = 1: 1.19: 0.69: 1.12. Interspaces: AME-AME 0.44, AME-ALE 0.60, PME-PME 1.44, PME-PLE 2.20, AME-PME 0.83, ALE-PLE 1.14. MOQ, aw: pw: l = 2.44: 2.83: 2.48. Width of clypeus to AME 0.43. Labium: L 2.47, W 2.87. Sternum: L 7.69, W 6.42. Legs: anterior leg ratios I = 4.1, II = 4.8.

Epigynum: epigynal sclerite begins midway along lateral side, broad near anterior (Fig. 27).

Variation

Carapace length of males, 11.62–12.49, mean 12.16 (n = 3). Embolic coils 9, but a male from Unley Park has almost 9½. Carapace length of females, 13.08–16.22, mean 14.32 (n = 19). Epigynal sclerite often rather broad anteriorly (Fig. 28). Insemination ducts with 9 coils. Usually with 5 retromarginal cheliceral teeth, much as in *insignis*. Colour generally darker than in *H. flindersi*.



FIGURES 14–21. *Holconia* males. 14–17, *H. nigrigularis* (Simon): 14, left palpal tibial apophysis and tarsus of syntype male ZMB 28.740, ventral; 15, embolic apophysis, SAMA N1988485; 16, left palpal tibial apophysis and proximal portion of tarsus, retrolateral, SAMA N1988498; 17, left retromarginal cheliceral teeth, SAMA N1988485. 18–21, left retromarginal cheliceral teeth: 18, *H. immanis* (L. Koch), SAMA N1988515; 19, *H. insignis* (Thorell), SAMA N1988522; 20, *H. hirsuta* (L. Koch), QM S12592; 21, *H. westralia*, holotype. e, embolus; eb, embolic base; cb, conductor base; sa, subembolic apophysis. Scale lines 0.5mm, 17–21 to same scale.

Distribution

Generally occurs along the Murray River and its tributaries in northern Victoria, southern New South Wales and South Australia (Fig. 36). In South Australia it is found along the Murray River from the Victorian border south to Murray Bridge, westwards along the River Marne and through the Barossa Valley to the Adelaide Plains in areas supporting *Eucalyptus camaldulensis*, and is known as far north as Whitwarta. In New South Wales it extends to Lake Cowal where it is sympatric with *H. insignis*. A penultimate specimen from Wilcannia is included in this taxon and indicates that the species is found along the Darling River system northwards to this locality. A female from Walwa in north-eastern Victoria is tentatively included until males from the area become available. Two populations appear to be isolated from the Murray River population. The first occurs on the floodplains and waterways of Lake Albacutya and Wyperfeld National Park in north-western Victoria while the second includes the Adelaide Plains and Barossa Valley west of longitude 139°00′.

Other material examined

Victoria: 2 ♀♀, Benalla, 36°33′S, 145°59′E, AM KS19950, AM KS19953; ♀, Gunbower, 35°58′S, 144°22′E, NMV; ♀, Kerang, 35°44′S, 143°55′E, NMV; juv., Lake Albacutya, *ca* 35°46′S, 142°03′E, AM KS19954; ♀, penult. ♂, Merbein, 34°10′S, 142°04′E, AM KS19971–2; ♀, Walwa, 35°58′S, 147°44′E, AM KS19956; 5 ♀♀, ♂, Wyperfeld, 35°32′S, 141°58′E, AM KS19944–7 (♂ = KS19945). **New South Wales:** juv., Balranald, 34°38′S, 143°34′E, SAMA N1988524; ♂, Lake Cowal, 33°36′S, 147°26′E, ANIC; ♀, Lake Mungo, 33°44′S, 143°02′E, SAMA N1989269; penult. ♀, Wilcannia, 31°34′S, 143°22′E, AM KS16657. **South Australia:** 3 ♀♀, Adelaide, 34°56′S, 138°36′E, SAMA N1988525–7; ♀, Bagot Well, 34°19′S, 138°59′E, SAMA N1988532; ♀, Blanchetown, 34°21′S, 139°37′E, SAMA N1988536; ♀, Chowilla, 34°01′S, 140°50′E, SAMA N1988540; penult. ♂, same locality, SAMA N1988405; 2 juv., Glen Osmond, Adelaide, SAMA N1989270–1; ♀, Henley Beach, Adelaide, SAMA N1988528; ♀, Hoyleton, 34°02′S, 138°34′E, SAMA N1988533; 2 ♀♀, Junction of River Marne and River Murray, 34°40′S, 139°19′E, SAMA N1988534–5; ♀, Lake Bonney, 34°13′S, 140°27′E, SAMA N1985143; ♀, Morgan, 34°02′S, 139°40′E, SAMA N1988537; ♀, same locality, SAMA N1988539; ♀, Murray Bridge, 35°07′S, 139°16′E, SAMA N1989272; ♀, Sandy Creek, 34°36′S, 138°49′E, SAMA N1988531; ♂, Unley Park, Adelaide, SAMA N1988529; ♀, Virginia, 34°40′S, 138°34′E, SAMA N1988530; juv., Woods Flat, 34°12′S, 139°38′E, SAMA N1989273.

Holconia immanis (L. Koch)
(Figs 1, 8, 18, 22–23, 35)

Delena immanis L. Koch, 1867: 208. Syntypes ♂, ♀, Brisbane, Queensland, NHMW, not located, presumed lost. One ♂ in NHMW [1884.1.454 (960)] with red 'T' on label but locality is Rockhampton, Queensland. Other material in NHMW seen (1882.II.38.) is not marked 'type' and does not match data given by Koch (1867). 'Syntypes', Brisbane, Queensland, ZMH (Mus. Godeffroy Nr 2285), may not be valid syntypes but material determined later by Koch (1875). One 'syntype' female examined.
Voconia immanis: L. Koch, 1875: 642, pl. 51, fig. 4.
Holconia immanis: Karsch, 1878: 792. Hirst, 1990: 18.
Isopeda immanis: Hogg, 1902: 432.
Mygale whitei Bonnet, 1957: 2994. Determination of 'white jointed spider', illustrated but not named by White, 1790. **New synonymy.**

Diagnosis

Abdomen dorsally with black anterior streak; venter with blackish badge markings. Chelicerae with retromarginal distal tooth largest. Male with relatively large subembolic apophysis; embolus usually with between 9¼ to 10 coils. Female epigynum relatively smaller than in other species, narrow anteriorly; lateral rims in anterior half usually diverging gradually or somewhat parallel to slightly broader posterior; epigynal sclerite large.

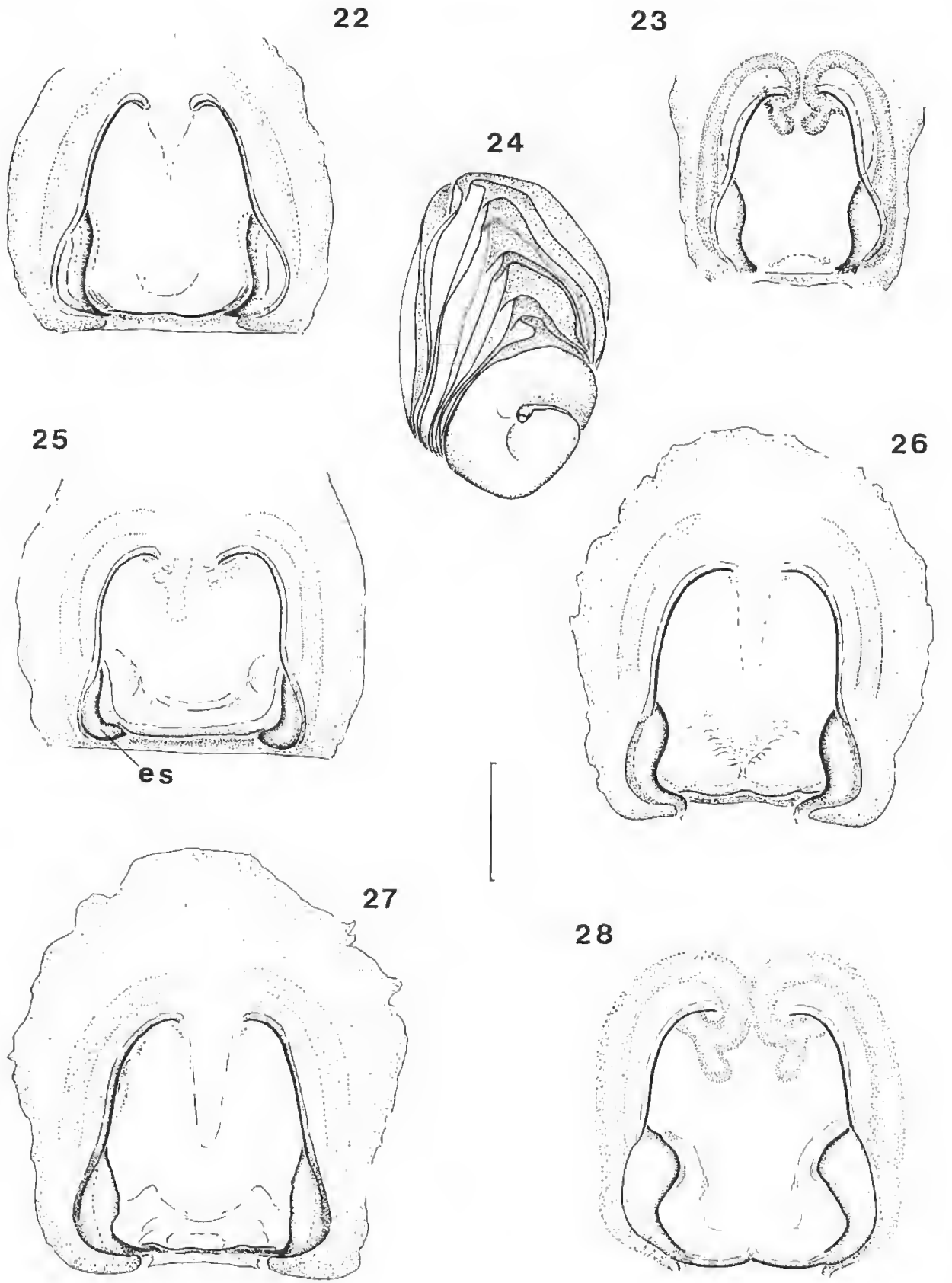
Female ZMH 2285

CL 13.5, CW 13.9, AL 20.5, AW 17.0.

Colour in alcohol: Carapace red-brown; orange-brown posterior and lateral margins. Setae brown-black medially; adpressed whitish setae around ocular area; long whitish setae on lateral margins. Chelicerae dark red-brown to blackish; long yellow-white setae. Maxillae and labium brown-black. Sternum dark red-brown; long blackish setae. Legs dark red-brown; venter of anterior tibiae with whitish setae medially. Abdomen yellowish with brownish suffusion giving rise to brown-black setae and forming a pattern dorsally and laterally; venter with blackish markings contained within 2 pale 'U' shaped lines.

Eyes: AME 0.90, AME: ALE: PME: PLE = 1: 1.11: 0.55: 0.66. Interspaces: AME–AME 0.44, AME–ALE 0.56, PME–PME 1.44, PME–PLE 1.78, AME–PME 0.77, ALE–PLE 1.11, MOQ, aw: pw: l = 2.33: 2.54: 2.22. Width of clypeus to AME 0.33. Chelicerae: retromarginal teeth 5; distal tooth largest. Sternum: L 7.4, W 6.0. Legs: anterior leg ratios, I = 4.4, II = 4.9.

Epigynum: (Fig. 22) lateral sides gradually diverging from relatively narrow anterior, posterior half broader; epigynal sclerite long, broad.



FIGURES 22–28. *Holconia* female epigyne. 22–23, *H. immanis* (L. Koch): 22, syntype ZMH 2285; 23, SAMA N1988510, spermathecae. 24, *H. insignis* (Thorell), SAMA N1988520, right insemination duct, dorsal. 25, *H. nigrigularis* (Simon), holotype *Isopeda simoni* Rainbow. 26, *H. flindersi,* allotype. 27–28, *H. murrayensis:* 27, allotype; 28, SAMA N1988536, spermathecae and epigynal sclerites. es, epigynal sclerite. Scale line 0.5mm.

Male SAMA N1988515 (as female except as follows) CL 10.54, CW 10.32, AL 12.80, AW 9.65.

Eyes: AME 0.74, AME: ALE: PME: PLE = 1: 1.03: 0.59: 0.96. Interspaces: AME-AME 0.34, AME–ALE 0.36, PME–PME 1.38, PME–PLE 1.50, AME–PME 0.72, ALE–PLE 0.81. MOQ, aw: pw: l = 2.34: 2.57: 2.27. Width of clypeus to AME 0.46. Labium: L 1.84, W 2.04. Sternum: L 5.56, W 4.79. Legs: anterior leg ratios I = 5.0, II = 5.9.

Palps: Subembolic apophysis large, knob-like. Embolic coils slightly greater than 9¾.

Variation

Carapace length of males, 10.64–14.21, mean 12.45 (n = 3). Embolic coils of 28 males examined showed a range greater than one complete coil, most had 9½ coils (n = 16), others were with 9¾ (n = 5), 10 to 10½ (n = 4) and 9 to 9¼ (n = 2). Carapace length of females, 13.38–15.02, mean 14.37 (n = 6). Insemination duct coils 10. Epigynum occasionally narrow, having somewhat parallel lateral rims in anterior half. Sternum occasionally dark reddish-brown.

Distribution

Occurs along the east coast of Australia from Thursday Island, Queensland, southwards to Nowa Nowa, Victoria. It is largely restricted to the eastern side of the Great Dividing Range (Fig. 35).

Other material examined

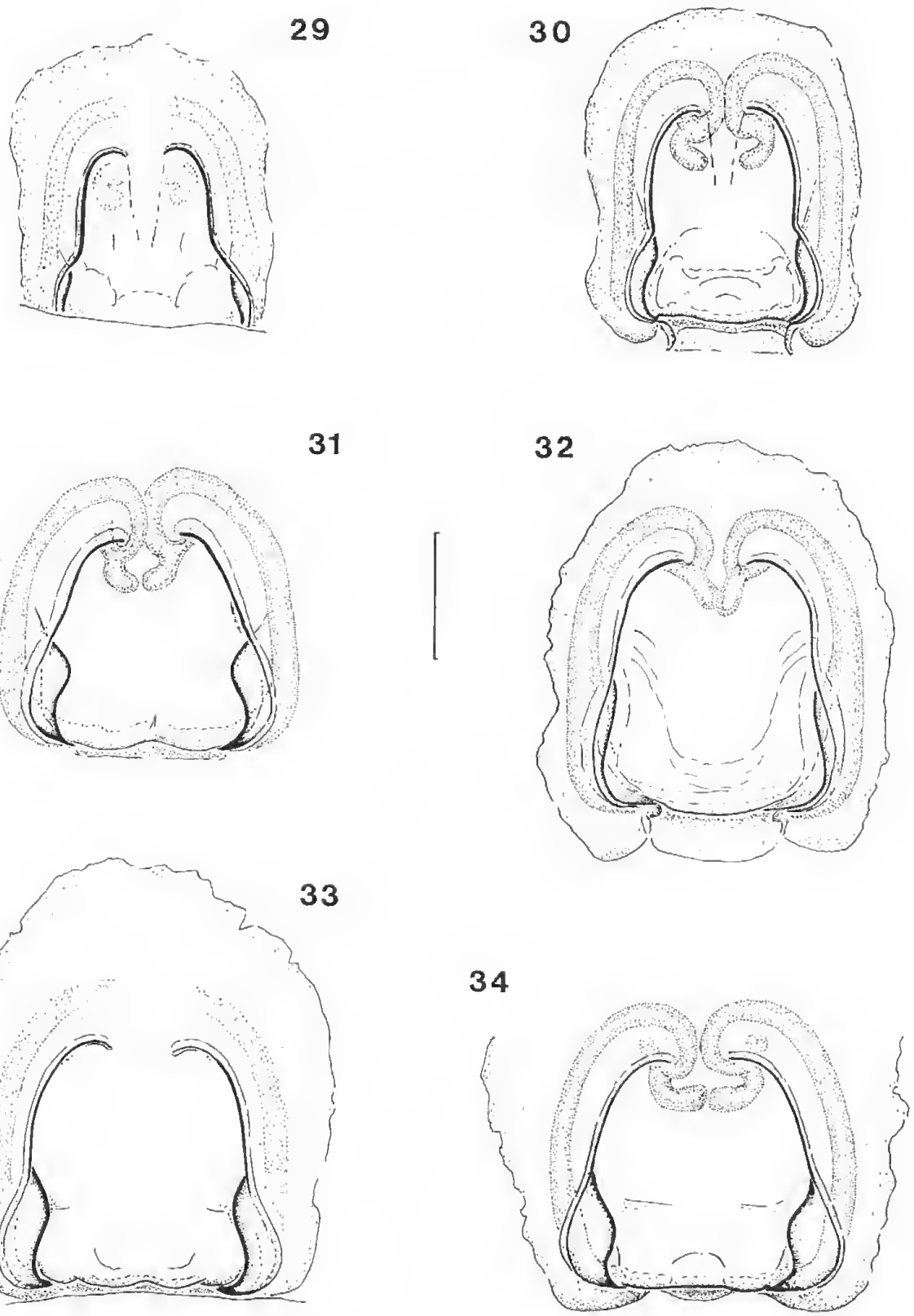
Queensland: ♂, Atherton, 17°16′S, 145°29′E, QM S12604; ♀, same locality, AM KS19702; ♀, Boonah, 28°00′S, 152°41′E, QM S12605; ♂, Brisbane, QM S12606; ♀, Byfield, 22°51′S, 150°39′E, AM KS19723; ♀, Cairns, 16°55′S, 145°46′E, QM S12607; ♀, same locality, AM KS19700; ♀, Calliope, 24°00′S, 151°12′E, QM S12608; ♀, Cape Hillsborough, 20°54′S, 149°03′E, QM S12609; 2 ♂♂, Closeburn, Brisbane, 27°20′S, 152°52′E, QM S12610–11; 2 ♀♀, Coolum, 26°33′S, 153°05′E, NMV; ♀, Cunninghams Gap, 28°03′S, 152°24′E, QM S12613; 2 ♀♀, Dunk Island, 17°57′S, 146°09′E, SAMA N1988513–4; ♀, Eumundi, 26°29′S, 152°57′E, NMV; ♂, Eurambala, Brisbane, QM S12614; ♂, Ferny Hills, Brisbane, QM S12615; ♀, Fitzroy Island, 16°56′S, 146°00′E, AM KS19708; 2 ♀♀, Fraser Island, 25°33′S, 152°59′E, AM KS19698, AM KS19701; ♂, Gin Gin, 25°00′S, 151°57′E, QM S12616; ♂, Gumdale, Brisbane, QM S12617; ♀, Gympie, 26°11′S, 152°40′E, QM S12618; juv., Herberton, 17°23′S, 145°23′E, AM KS19645; ♂, Highvale, Brisbane, QM S12619; ♂, penult. ♀, Holloway Beach, 16°50′S, 145°44′E, SAMA N1988515–6; ♀, Jimboomba, 27°50′S, 153°02′E, QM S12620; ♀, Koongal, 23°23′S, 150°33′E, AM KS16630; ♀, Logan River, 28°16′S, 152°44′E, SAMA N1988512; ♂, Marlaybrook, 26°54′S, 151°36′E, QM S12621; ♀, North Pine River, 27°16′S, 152°55′E, QM S12622; ♂, Nundah, Brisbane, 27°25′S, 153°03′E, QM S12623; 4 ♂♂, Percy Island, 21°42′S, 150°20′E, QM S12624; ♂, Proserpine, 20°24′S, 148°35′E, QM S12625; ♂, Redbank, 27°36′S, 152°52′E, QM S12626; ♀, Rockhampton, 23°22′S, 150°32′E, AM KS16659; juv., same locality, AM KS19644; ♂, Scarborough, 27°12′S, 153°07′E, QM S12627; ♂, Stradbroke Island, *ca* 27°50′S, 153°25′E, NMV; 2 ♂♂, Thursday Island, 10°35′S, 142°13′E, QM S12628; juv., Warwick, 28°13′S, 152°02′E, AM KS20501. **New South Wales:** 2 ♂♂, juv., Brooklana, 30°16′S, 152°53′E, AM KS19706; 2 ♂♂, Brunswick Heads, 28°32′S, 153°33′E, SAMA N1988508–9; ♀, Charlestown, 32°58′S, 151°41′E, AM KS19707; ♀, Congarinni, 30°44′S, 152°52′E, AM KS17879; ♀, Coraki, 29°00′S, 153°17′E, AM KS16535; 2 ♂♂, Cudgen, 28°16′S, 153°33′E, QM S12612; ♂, Engadine, Sydney, AM KS16607; ♀, Gladesville, Sydney, AM KS19655; ♀, Glenhaven, 31°11′S, 151°58′E, AM KS19697; ♀, Goonengerry, 28°37′S, 153°26′E, AM KS19717; ♀, Gordon, Sydney, AM KS19704; juv., Gosford, 33°26′S, 151°20′E, AM KS19673; ♀, Grafton, 29°41′S, 152°56′E, NMV; ♀, same locality, AM KS17183; juv., Macksville, 30°43′S, 152°55′E, AM KS18271; ♀, Mona Vale, Sydney, AM KS18390; ♀, Mooney Mooney, 33°31′S, 151°12′E, AM KS19674; penult. ♂, Mullumbimby, 28°33′S, 153°30′E, AM KS19716; ♀, Mumbulla, *ca* 36°33′S, 149°52′E, AM KS19715; juv., Nadgee, 37°28′S, 149°58′E, AM KS19705; ♀, Nelligen, 35°39′S, 150°08′E, AM KS16595; ♂, 2 juv., Nowra, 34°53′S, 150°36′E, SAMA N1988505–7; ♀, Pennant Hills, Sydney, AM KS19672; ♂, Stotts Island, Tweed River, 28°16′S, 153°30′E, QM S12593; juv., Taree, 31°54′S, 152°29′E, AM KS16680; ♂, Tooloom, 28°37′S, 152°25′E, AM KS16605; 2 juv., same locality, AM KS16631; ♀, Turramurra, 31°20′S, 150°59′E, AM KS19699. **Victoria:** ♂, 3 ♀♀, Noorinbee, 37°31′S, 149°10′E, AM KS19948, AM KS19719–21; ♀, Nowa Nowa, 37°44′S, 148°06′E, AM KS19718.

The *hirsuta* Group

Two species, *H. hirsuta* and *H. neglecta*, differ from the *insignis* group only in the lower number of coils in the embolus of the male and spermathecae of the female, the retromarginal cheliceral teeth being closer to the fang base and the female epigynum relatively broader posteriorly. The group has a northern distribution.

Holconia hirsuta (L. Koch)
(Figs 5, 11, 20, 29–30, 36)

Isopeda hirsuta L. Koch, 1875: 693, pl. 59, fig. 1. Holotype ♂, Bowen [20°01′S, 148°15′E],



FIGURES 29–34. *Holconia* female epigyne. 29–30, *H. hirsuta* (L. Koch): 29, holotype *H. subdola* Thorell; 30, SAMA N1988517, spermathecae. 31, *H. neglecta* holotype, spermathecae. 32, *H. westralia* allotype, spermathecae. 33–34, *H. colberti*: 32, allotype; 33, paratype NMV K-0922, spermathecae. Scale line 0.5mm.

Queensland, ZMH (Mus. Godeffroy Nr 11013), left palp examined (whole specimen in poor condition, not able to be sent).
Holconia hirsuta: Hirst, 1990: 18.
Holconia subdola Thorell, 1881: 304. Holotype, ♀, Somerset [10°45′S, 142°35′E], Queensland, 1875, L.M. D'Albertis. MCG, examined. **New synonymy.**

Diagnosis
From other species by the male having only 7½ to 8 embolic coils (except *H. neglecta* in which the unknown male is also expected to have a similar coil number), a shorter palpal tibial apophysis and small subembolic apophysis. From *H. neglecta* in the female by the epigynum lateral rims being somewhat parallel in anterior half then diverging sharply to broad posterior half; epigynal sclerite small and relatively short.

Female (holotype *H. subdola* Thorell)
CL 11.8, CW 11.1, AL 12.5, AW 9.0.
Colour in alcohol: Carapace and legs dark reddish-brown; caput and striae darker. Abdomen yellow-brown with patches of orange setae.
Eyes: AME 0.78, AME: ALE: PME: PLE = 1: 1.18: 0.62: 1. Interspaces: AME–AME 0.44, AME-ALE 0.51, PME-PME 1.36, PME-PLE 1.32, AME-PME 0.74, ALE-PLE 1.10. MOQ, aw: pw: 1 = 2.33: 2.56: 2.31. Width of clypeus to AME 0.36. Chelicerae: retromarginal teeth 5; distal tooth subequal to subdistal tooth. Labium: L 1.96, W 2.42. Sternum: L 6.20, W 5.38. Legs: anterior leg ratios I = 3.7, II = 4.5.
Epigynum: (Fig. 29) lateral rims diverging sharply mid-length to broad posterior; epigynal sclerite small, relatively short.

Male QM S12592
CL 9.32, CW 9.08, AL 10.65, AW 6.75.
Colour in alcohol: Carapace orange-red, suffused with black; posterior margin yellowish; caput reddish. Chelicerae maxillae and labium reddish. Sternum and coxae orange. Legs yellow to orange-red. Abdomen yellowish-brown with faint mottled pattern and dorsal anterior pale streak of brown and orange setae; venter yellowish with brown suffusion.
Eyes: AME 0.66, AME: ALE: PME: PLE = 1: 1.15: 0.69: 1.14. Interspaces: AME–AME 0.27, AME-ALE 0.30, PME-PME 1.18, PME-PLE 1.41, AME-PME 0.82, ALE-PLE 0.85. MOQ, aw: pw: 1 = 2.27: 2.59: 2.30. Width of clypeus to AME 0.27. Labium: L 1.67, W 1.83. Sternum: L 5.01, W 4.41. Legs: anterior leg ratios I = 4.7, II not available (legs missing).
Palps: Embolus with 8 coils. Holotype with 7½ coils (Fig. 11).

Variation
Carapace length of male QM S12603, 11.3. Embolus with 7¾ coils. Carapace length of females, 11.48–14.50, mean 13.22 (n = 9). Vulva of SAMA N1988517 with 8 insemination duct coils. Cheliceral teeth usually with a space subequal to a tooth width between median and subdistal teeth.

Distribution
Occurs in north-east Queensland from Cape York south to Townsville, westwards to Hughenden (Fig. 36). A juvenile from Floraville Station near Burketown and a female from Burketown are tentatively included although the epigynum shape of the female is not characteristic.

Other material examined
Queensland: ♀, Burketown, 17°45′S, 139°33′E, AM KS16643; ♀, Cape Pallarenda, 19°11′S, 146°46′E, QM S12599; ♀, Chillagoe, 17°09′S, 144°31′E, QM S12600; ♀, Davies Creek, 16°55′S, 145°32′E, QM S12601; ♂, Finch Hatton, 21°09′S, 148°38′E, QM S12592; penult. ♂, Hughenden, 20°51′S, 144°12′E, QM S12602; juv., Floraville Stn 18°14′S, 139°52′E, QM; juv., Mingela, 19°53′S, 146°38′E, QM; ♂, 3 ♀♀, 3 juv., Mt Molloy, 16°41′S, 145°20′E, QM S12603; juv., Townsville, 19°16′S, 146°49′E, SAMA N1988518; ♀, Wenlock Goldfield, 13°05′S, 142°57′E, SAMA N1988517.

Holconia neglecta sp. nov.
(Figs 31, 36)

Types
Holotype: ♀, on snappy gum, 50 km SW Wave Hill, 17°27′S, 130°50′E, Northern Territory, 31. viii. 1981, H. Parnaby, AM KS18913.
Paratype: ♀, same data as holotype but 2130 hours, riverside vegetation, AM KS19957.

Diagnosis
Males unknown. Females diagnosed by the epigynum with lateral rims diverging gradually to broad posterior margin; epigynal sclerite broad at first then rapidly narrowing. Vulva with insemination ducts coiled 8 times.

Holotype female
CL 12.85, CW 12.42, AL 14.50, AW 9.80.
Colour in alcohol: Carapace orange-red; caput reddish with white adpressed setae, dense in ocular area; sparse black-brown setae form transverse band in region of fovea. Chelicerae dark reddish; yellow-brown setae and adpressed white setae. Maxillae and labium red-brown. Sternum orange-brown; sparse upright yellow-brown and adpressed white setae.

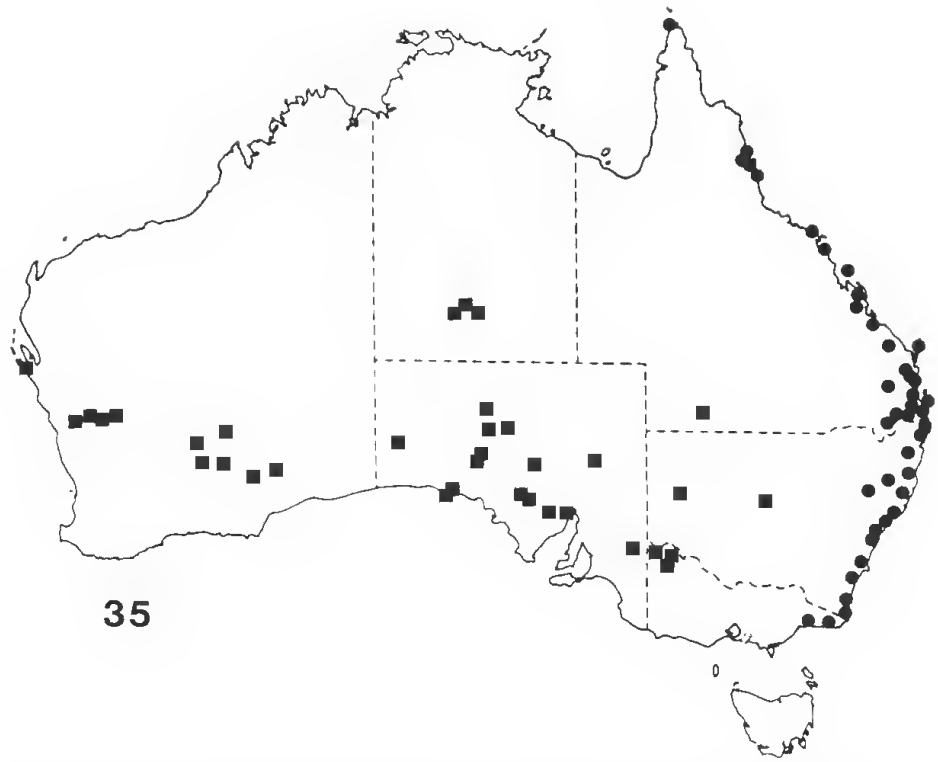


FIGURE 35. Distribution of *Holconia nigrigularis* (Simon) ■ and *H. immanis* (L. Koch) ●.

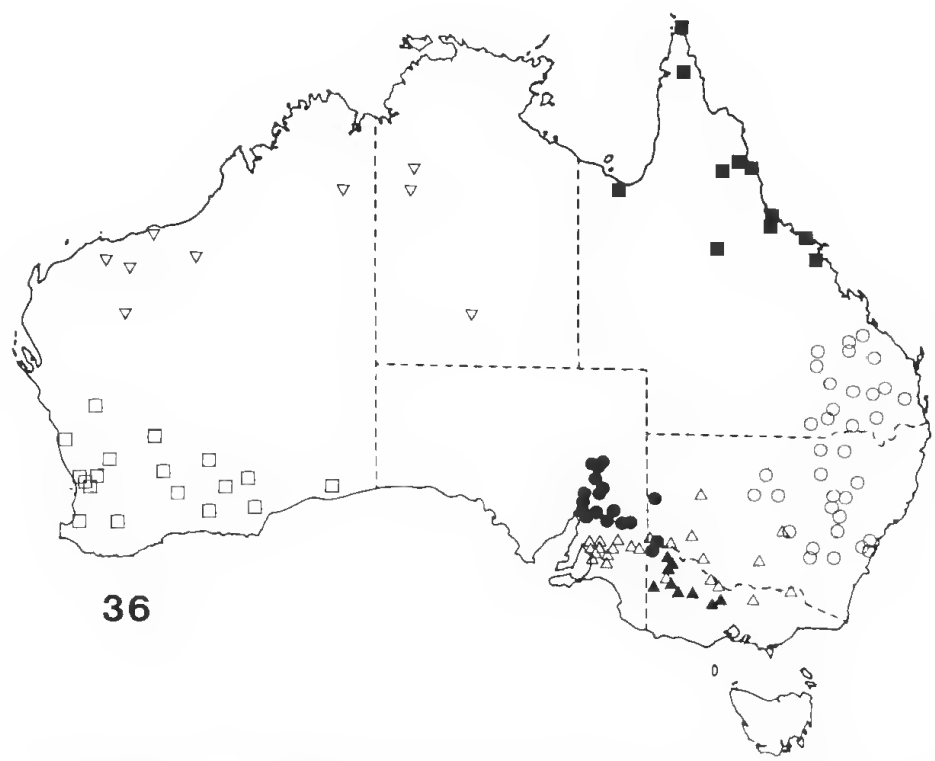


FIGURE 36. Distribution of *Holconia insignis* (Thorell) ○, *H. flindersi* ●, *H. murrayensis* △, *H. hirsuta* (L. Koch) ■, *H. neglecta* ▽, *H. colberti* ▲ and *H. westralia* □.

Coxae yellow-brown. Legs with yellow-brown femora, anterior pairs red-brown distally with blackish suffusion; remaining segments red-brown; tibiae with blackish suffusion at ends. White setae ventrally on femora, patellae and medially on tibiae. Abdomen yellowish with yellow anterior streak; orange-brown setae forming a spotted pattern; venter yellow.

Eyes: AME 0.78. AME: ALE: PME: PLE = 1: 1.09: 0.64: 1.10. Interspaces: AME-AME 0.50, AME-ALE 0.58, PME-PME 1.68, PME-PLE 1.85, AME-PME 0.79, ALE-PLE 1.23. MOQ, aw: pw: 1 = 2.50: 2.96: 2.33. Width of clypeus to AME 0.32. Chelicerae: retromarginal teeth 5; distal tooth curved towards anterior, subequal to subdistal tooth. Labium: L 2.26, W 2.68. Sternum: L 7.12, W 5.73. Legs: anterior leg ratios I = 3.8, II = 4.3.

Epigynum: (Fig. 31) lateral sides diverging to posterior; epigynal sclerite large, curved, narrowing posteriorly.

Variation

Carapace length of paratype, 12.54.

Distribution and remarks

Northern Territory and northern Western Australia (Fig. 36). A female from Alice Springs is tentatively considered to belong to this taxon. A juvenile from Mitchell Plateau is probably not conspecific as it has a reddish-brown sternum with blackish suffusion anteriorly and a yellow-brown posterior margin. The abdomen is not as distinctly marked dorsally while the venter resembles that of *H. immanis* but is orangish with orange-brown contained within whitish 'U' shaped markings.

Etymology

The specific epithet reflects the paucity of mature specimens available for study and the consequent incomplete treatment of this species.

Other material examined

Northern Territory: ♀, Alice Springs, 23°42′S, 133°52′E, SAMA NI988519; 2 juv., Hooker Creek, 18°20′S, 130°38′E, AM KS18912, AM KS20502. **Western Australia:** juv., Halls Creek, 18°14′S, 127°40′E, SAMA NI989274; penult. ♂, De Grey River, 20°20′S, 119°13′E, WAM 88/871; juv., Hooley, 21°53′S, 118°13′E, WAM 88/881; juv., Lower Carawine Gorge, 21°29′S, 121°02′E, WAM 88/1822; penult. ♂, Millstream, 21°35′S, 117°04′E, WAM 88/898; juv., Mitchell Plateau, 14°49′S, 125°50′E, WAM 88/2014; penult. ♂, Mt Vernon, 24°09′S, 118°02′E, WAM 88/906.

The *colberti* Group

The two species, *H. colberti* and *H. westralia*, have a slightly higher carapace, clypeus width about half diameter of AME and four retromarginal cheliceral teeth. The male embolus is coiled between 10 to 11⅓ times. The group has a southern distribution.

Holconia colberti sp. nov.
(Figs 7, 12, 33–34, 36)

Types

Holotype: ♂, site 59, drift fence pitfall trap, 14.4 km SE Walpeup, 35°11′S, 142°11′E, Victoria, Jan. 1987, A.L. Yen, NMV K-0919.

Allotype: ♀, Lake Hattah, 34°44′S, 142°21′E, Mallee, Victoria, Oct. 1915, J.E. Dixon, NMV K-0920.

Paratypes: ♀, same data as allotype, NMV K-0921; ♀, Kewell, 36°31′S, 142°21′E, Victoria, Nov. 1892, J.A. Kershaw, NMV K-0922.

Diagnosis

Carapace high but flattish above. Male embolus with 11¼ to 11⅓ coils; subembolic apophysis broad. Females with relatively short, broad epigynal sclerite; insemination ducts coiled 11 times.

Holotype male

CL 10.95, CW 10.42, AL 13.50, AW 8.65.

Colour in alcohol: Carapace reddish-brown, darker suffusion; lateral eye surrounds blackish mesally. Blackish setae on carapace; some white setae in ocular area. Chelicerae dark red-brown to blackish; long yellowish and short recumbent setae. Maxillae and labium as chelicerae. Sternum orange-yellow. Coxae yellowish. Legs red-brown; femora paler with blackish suffusion at base proventrally; spine bases darker red-brown; setae blackish; sparse white recumbent setae on femora, patellae and tibiae, mostly proventral. Abdomen dorsally yellowish with brown markings; anterior median streak indistinct; venter pale yellow.

Eyes: AME 0.64. AME: ALE: PME: PLE = 1: 1.22: 0.75: 1.19. Interspaces: AME-AME 0.56, AME-ALE 0.38, PME-PME 1.47, PME-PLE 1.75, AME-PME 1.16, ALE-PLE 1.25. MOQ, aw: pw: 1 = 2.56: 2.97: 1.31. Width of clypeus to AME 0.52. Chelicerae: retromarginal teeth 4, closely spaced; distal subequal, angled more anteriorly. Labium: L 1.78, W 2.14. Sternum: L 5.58, W 4.99. Legs: anterior leg ratios I = 4.3, II = 4.9.

Palps: Embolic base relatively large; subembolic apophysis broader than in other species (Fig. 7). Embolus coiled almost 11¾ times.

Allotype female (as male except as follows)

CL 12.95, CW 12.65, AL 17.00, AW 12.50.

Colour in alcohol: dark red-brown.

Eyes: AME 0.72. AME: ALE: PME: PLE = 1: 1.28: 0.67: 1.15. Interspaces AME–AME 0.55, AME–ALE 0.61, PME–PME 1.61, PME–PLE 2.06, AME–PME 1, ALE–PLE 1.36. MOQ, aw: pw: l = 2.56: 2.94: 2.64. Width of clypeus to AME 0.54. Labium: L 2.36, W 2.65. Sternum: L 6.74, W 5.68. Legs: anterior leg ratios I = 4.0, II = 4.7.

Epigynum: (Fig. 33) not much broader posteriorly; epigynal sclerite relatively short.

Variation

Carapace length of males, 10.56–12.65, mean 11.53 (n=3; embolus of 2 specimens coiled 11¼ times and 1 coiled 11½ times). Carapace length of females, 11.02–14.89, mean 12.70 (n=16). Vulva of paratype NMV K-0922 (Fig. 34) with sharply curved spermathecal sacs and 11 insemination coils. Two specimens have 5 retromarginal teeth on either left or right chelicera and a further two are with 5 on both chelicera. One male has only 3 teeth on the left chelicera. Leg II may be relatively shorter than in other species and the anterior legs appear more robust.

Distribution

Western Victoria from Broughton eastwards to Elmore, and Hattah Lakes southwards to at least Marong near Bendigo (Fig. 36). One female from Melbourne may have been transported in with timber.

Etymology

Named after the owners of a property SW of Broughton, Victoria, where I had the opportunity to collect several specimens.

Other material examined

Victoria: 2 ♂♂, 8 ♀♀, penult. ♂, SW Broughton, 36°12′S, 141°19′E, SAMA N1989605–15, juv., same locality, SAMA N1989275; ♂, 3 ♀♀, Charlton, 36°16′S, 143°21′E, AM KS19949; ♀, Elizabeth St, Melbourne, NMV; juv., Elmore, 36°30′S, 144°37′E, SAMA N1990273; ♀, Hattah Lakes, 34°44′S, 142°21′E, AM KS19951; penult. ♀, juv., same data as allotype, NMV; juv., Kewell, same data as paratype, NMV; penult. ♂, juv., mallee scrub, western district, Feb. 1884, NMV; 2 ♀♀, Marong, 36°44′S, 144°08′E, AM KS19952, AM KS19955; juv., Ouyen, 35°04′S, 142°19′E, NMV; ♀, juv., Warracknabeal, 36°15′S, 142°24′E, NMV.

Holconia westralia sp. nov.
(Figs 6, 13, 21, 32, 36)

Types

Holotype: ♂, Salmon Gums Pre-Primary School, 32°59′S, 121°39′E, Western Australia, 11. iii. 1983, N. Contreau, WAM 86/688.

Allotype: ♀, on log, WL South Camp, Woodline, 31°54′S, 122°24′E, Western Australia, WAM Goldfields Survey, Aug. 1980, W.F. Humphreys *et al.*, WAM 88/926.

Paratypes: ♂, Yellowdine, 31°18′S, 119°39′E, Western Australia, 6. xi. 1970, W.H. Butler, WAM 86/683; ♀, N of Lake Hope, 32°16′S, 120°16′E, Western Australia, 26. ix. 1978, Barron and Harold, WAM 88/890.

Diagnosis

Carapace slightly convex; chelicera usually with 4 retromarginal teeth. Male embolus with 10 to 10¼ coils. Female with long narrow epigynal sclerite.

Holotype male

CL 11.82, CW 11.01, AL 11.95, AW 8.25.

Colour in alcohol: Carapace orange-red, posterior and laterals paler; caput dark red. Chelicerae dark red-brown; yellow setae; some adpressed white setae proximally. Maxillae and labium dark red-brown. Sternum yellow-brown; brownish and white setae. Coxae yellowish. Anterior legs orange-red, posterior legs yellow-red; metatarsi and tarsi reddish. Setae bases dark coloured; numerous clumps of whitish setae dorsally. Venter of patellae and tibiae medially with long whitish setae. Abdomen yellow-brown with darker patches; 3 indistinct pairs of blackish spots; anterior streak with orange-red setae; venter yellowish; yellow-brown setae.

Eyes: AME 0.71. AME: ALE: PME: PLE = 1: 1.24: 0.73: 1.07. Interspaces: AME–AME 0.41, AME–ALE 0.35, PME–PME 1.15, PME–PLE 1.30, AME–PME 0.86, ALE–PLE 0.87. MOQ, aw: pw: l = 2.41: 2.62: 2.56. Width of clypeus to AME 0.51. Chelicerae: retromarginal teeth 4 consisting of a small basal tooth and 3 well-spaced larger teeth of which the distal is smallest (Fig. 21). Labium: L 1.94, W 2.24. Sternum: L 5.96, W 5.18. Legs: anterior leg ratios I = 4.5, II = 5.3.

Palps: Tibial apophysis barely curved inwards at apex. Subembolic apophysis small, base inclined (Fig. 6). Embolus with 10 coils.

Allotype female (as holotype except as follows)

CL 11.93, CW 11.18, AL 14.45, AW 11.65.

Eyes: AME 0.71. AME: ALE: PME: PLE = 1: 1.20: 0.69: 1.10. Interspaces: AME–AME 0.42, AME–ALE 0.38, PME–PME 1.29, PME–PLE 1.61, AME–PME 0.92, ALE–PLE 1.01. MOQ, aw: pw: l = 2.42: 2.68: 2.44. Width of clypeus to AME 0.45. Chelicerae: right chelicera with additional small basal tooth on retromargin; teeth more closely spaced. Labium: L 1.96, W 2.38. Sternum: L 6.09, W 5.38. Legs: anterior leg ratios I = 3.9, II = 4.5.

Epigynum: (Fig. 31) epigynal sclerite long, narrow.

Variation

Carapace length of males, 9.80–11.65, mean 10.91 (n = 7). Embolus coils 10 to 10¼. Carapace length of females, 11.55–13.52, mean 12.53 (n = 11). Most often with 4 retromarginal cheliceral teeth, rarely with 5 on both chelicera.

Distribution

Semi-arid and areas of moderate rainfall in south-west Western Australia (Fig. 36).

Other material examined

Western Australia: ♀, Booanya, 32°46′S, 123°26′E, NMV; 2 juv., same locality, AM KS19647, AM KS19658; 6 juv., Buningonia Spring, *ca* 31°25′S, 123°34′E, WAM 88/2047–50, WAM 88/2052–3; juv., Cottesloe, Perth, WAM 12/5132; 2 ♂♂, 2 ♀♀, 3 juv., Darlington, 31°55′S, 116°04′E, WAM 86/642–4, WAM 88/1833–4, WAM 88/1836–7; juv., Diemals, 29°40′S, 119°18′E, WAM 88/872; ♀, Fremantle, Perth, WAM 88/1845; juv., Glen Forrest, 31°55′S, 116°06′E, WAM 88/1533; ♀, Gooseberry Hill, 31°57′S, 116°03′E, WAM 88/1850; ♀, Hovea, 31°52′S, 116°06′E, WAM 88/1856; 2 ♂♂, Kalamunda, 31°58′S, 116°03′E, WAM 88/1858–9; ♂, Kalgoorlie, 30°45′S, 121°28′E, NMV; 2 ♀♀, 1 juv., Katanning, 33°41′S, 117°33′E, WAM 88/884–6; juv., Lake Indoon, 29°52′S, 115°09′E, WAM 88/2440; juv., Madura, 31°53′S, 127°03′E, WAM 88/894; juv., Mahogany Creek, 31°54′S, 116°08′E, WAM 88/1871; ♀, Midland Junction, Perth, WAM 88/897; juv., Mt Pleasant, Perth, WAM 88/1881; ♂, Parkerville, 31°53′S, 116°08′E, WAM 86/667; ♀, Pearce, 31°40′S, 116°01′E, WAM 88/915; ♂, Perth, 31°57′S, 115°51′E, WAM 86/668; ♀, Toodyay, 31°33′S, 116°28′E, WAM 88/916; 2 juv., Walk Walkin, 30°49′S, 117°19′E, WAM 40/1075–6; juv., Wanneroo, 31°45′S, 115°48′E, WAM 88/1772; penult. ♂, Wellard, 32°16′S, 115°51′E, WAM 88/1919; ♀, Wembley, Perth, WAM 88/1921; 5 juv., Woodline, 31°53′S, 122°27′E, WAM 88/2090, WAM 88/2099–100, WAM 88/2104; juv., Wundowie, 31°46′S, 116°23′E, WAM 88/931; juv., Yalgoo, 28°21′S, 116°41′E, WAM 26/683.

The *nigrigularis* Group

This 'group' consists of only one species, *H. nigrigularis*, which has a flatter carapace, subembolic apophysis of the male not connected directly to the tegulum, female with broad epigynum and relatively straight spermathecal sacs. It occurs in arid to semi-arid areas.

Holconia nigrigularis (Simon)
(Figs 14–17, 25, 35)

Isopoda nigrigularis Simon, 1908: 438. Syntype ♂, Stat[ion]. 70, Tamala [26°42′S, 113°43′E], Western Australia, ZMB 28.740, examined. Simon (1908) also lists Northampton, Western Australia, as a locality record but without giving further details of any specimen. Whereabouts of that specimen is unknown.

Isopoda woodwardi Simon, 1908: 437. Holotype ♀, Stat[ion]. 93, Kalgoorlie [30°45′S, 121°28′E], Western Australia, ZMB 28.739, examined.

Isopeda simoni Rainbow, 1911: 234. Nom. nov. for *Isopeda woodwardi* Simon, 1908, homonym of *Isopeda woodwardi* Hogg, 1902. **New synonymy.**

Holconia nigrigularis: Hirst, 1990: 18.

Diagnosis

H. nigrigularis is separated from other species by the flatter carapace, 8–9 times longer than high, depressed medially. Clypeus width about ¼ diameter of AME. Abdomen without a distinct pattern but with grey-black venter. Chelicera usually with 4 retromarginal teeth. Male embolic base with prodistal low rounded subembolic apophysis not fixed to tegulum; striations near embolus origin; embolus usually with 9 to 9¼ coils but may have a half coil more or less. Female epigynum broad, rounded. Epigynal sclerite narrow; short to moderate length. Spermathecal sacs straight to gently curved.

Holotype male

CL 7.7, CW 7.5, AW 9.0, AL 5.5.

Colour in alcohol: Carapace reddish-yellow, striae reddish; white and brown-black adpressed setae. Chelicerae reddish with erect yellow-white setae. Maxillae and labium orange-red brown. Sternum yellowish medially; margins and anterior portion yellow-brown. Palps yellowish; cymbium yellow-brown. Coxae cream-yellow. Legs orange-yellow. Abdomen dorsally yellowish with clusters of reddish-brown or orange setae forming a vague pattern; venter with large ill-defined grey-black patch.

Eyes: AME 0.54, AME: ALE: PME: PLE = 1: 1.11: 0.51: 1. Interspaces: AME–AME 0.25, AME–ALE 0.32, PME–PME 1.33, PME–PLE 1.50, AME–PME 0.74, ALE–PLE 0.97. MOQ, aw: pw: l = 2.44: 2.50: 2.10. Width of clypeus to AME 0.13. Chelicerae: retromarginal teeth 4, closely spaced; distal tooth shorter than subdistal. Labium: L 1.26, W 1.54. Sternum: L 4.4, W 3.7. Legs: anterior leg ratios I = 4.7, II = 5.5.

Palps: Embolus coiled 8½ times.

Female ZMB 28.739 (holotype *Isopoda woodwardi* Simon)

CL 12.0, CW 11.5, AL 16.4, AW 13.7.

Colour in alcohol: cephalothorax and legs darker than holotype, abdomen without pattern; venter yellow-brown.

Eyes: AME 0.74, AME: ALE: PME: PLE = 1: 1.11: 0.54: 0.69. Interspaces: AME-AME 0.38, AME-ALE 0.53, PME-PME 1.43, PME-PLE 1.35, AME-PME 0.73, ALE-PLE 1.08. MOQ, aw: pw: l = 2.35: 2.54: 2.11. Width of clypeus to AME 0.14. Labium: L 2.00, W 2.50. Sternum: L 6.70, W 5.40. Legs: anterior leg ratios I = 3.8, II = 4.5.

Epigynum: (Fig. 25) Anterior broadly rounded; lateral rims somewhat parallel, barely diverging, not much broader posteriorly. Epigynal sclerite narrow, less than half length of fossa.

Variation

Carapace length of males, 9.58–11.86, mean 10.64 (n = 9). Embolic coils 9 to 9¼ but one specimen has 8½ as in the holotype while another has 9¾. Carapace length of females, 10.24–13.67, mean 12.02 (n = 21). Insemination duct coils 9. Abdomen dorsally may have a pattern consisting of 3 pairs of large brown-black patches.

Distribution and remarks

Occurs in arid and semi-arid areas of Australia from the west coast of Western Australia through South Australia and southern Northern Territory to south-western Queensland, western New South Wales and north-western Victoria (Fig. 35). Although a large spider, is often found in areas of low trees or mallee where it lives in hollows in the trunk as well as under bark. Hogg (1896) incorrectly identified two female specimens (in NMV) of this taxon from Alice Springs as *Voconia dolosa*. The three male specimens from the same locality have not been seen but are probably also *H. nigrigularis*.

Other material examined

Western Australia: ♀, Buningonia Spring, 31°24′25″S, 123°34′20″E, WAM 88/865; 3 juv., same locality, WAM 88/2052-4; juv., Burnabinmah Station, 28°47′S, 117°22′E, WAM 88/866; ♀, Goongarrie, 29°53′S, 121°10′E, WAM 88/880; ♀, Gullewa, 28°39′S, 116°19′E, WAM 88/1853; ♀, Kalgoorlie, 30°45′S, 121°28′E, NMV; ♀, Messengers Patch, 28°41′S, 116°57′E, WAM 88/896; ♂, Mt Margaret, 28°48′S, 122°11′E, WAM 86/663; ♀, Naretha 31°00′S, 124°50′E, WAM 88/1887; ♀, North Irwin River, 28°50′S, 115°42′E, WAM 88/910; ♂, Randells (Siding), 30°57′S, 122°15′E, BYM 56/A37; juv., Yundamindra, 29°18′S, 122°25′E, WAM 88/2127. **South Australia:** ♂, Bookabie, 31°51′S, 132°42′E, SAMA N1988496; penult. ♀, Cook, 29°49′S, 130°07′E, SAMA N1988480; 2 ♀♀, Durkin, 30°17′S, 133°44′E, SAMA N1988476-7; ♂, Fowlers Bay, 32°00′S, 132°27′E, SAMA N1988486; ♀, Gawler Ranges (without exact locality), SAMA N1988488; juv., Lake Acraman, 32°00′S, 135°32′E, SAMA N1988489; 2 ♀♀, penult. ♂, Lake Gilles, 32°38′S, 136°53′E, SAMA N1988490-2; ♀, Lincoln Gap, 32°36′S, 137°35′E, SAMA N1988495; ♀, ♂, Locks Well, 30°40′S, 136°03′E, SAMA N1988482-3; 2 ♂♂, Mabel Creek, 29°10′S, 134°10′E, SAMA N1988484-5; ♀, Mt Ives Station, 32°26′S, 136°04′E, SAMA N1988487; juv., Mt Willoughby, 27°58′S, 134°09′E, NMV; ♂, 'North' (no exact locality), SAMA N1988497; ♂, ♀, juv., Renmark, 34°10′S, 140°45′E, SAMA N1988498–500; juv., Stuarts Range, *ca* 29°00′S, 135°00′E, SAMA N1988481; 2 ♀♀, Yardea Station, 32°23′S, 135°31′E, SAMA N1988493-4; 2 juv., Yokes Hill (no exact locality), SAMA N1988478-9; 3 ♀♀, Wynbring Rocks, 30°33′S, 133°32′E, NMV. **Northern Territory:** ♀, Alice Springs, 23°42′S, 133°52′E, NTM A78; ♀, same locality, NMV; juv., Hermannsburg, 23°57′S, 132°46′E, SAMA N1988502; penult. ♂, MacDonnell Ranges, *ca* 23°40′S, 133°00′E, SAMA N1988501; ♂, Mt Gillen, 23°43′S, 133°48′E, NTM A95; ♀, Todd River (no exact locality), NTM A14. **Queensland:** ♂, Thargomindah, 28°01′S, 143°48′E, QM S12594. **New South Wales:** ♀, Nymagee, 32°04′S, 146°19′E, AM KS16632; 2 ♀♀, Springs Creek, 31°43′S, 142°41′E, SAMA N1988503-4. **Victoria:** ♂, Hattah, 34°41′S, 142°18′E, NMV; ♂, Meringur, 34°26′S, 141°26′E, NMV; juv., same locality but 34°24′S, 141°23′E, NMV; ♂, Millewa, 34°44′S, 141°04′E, NMV; ♂, Walpeup, 35°11′S, 142°11′E, NMV.

ACKNOWLEDGMENTS

I am grateful to the following for the loan of material and types or for information regarding the location of types: Dr Giuliano Doria (MCG), Dr M.R. Gray and Ms C. Horseman (AM), Dr J. Gruber (NHMW), Dr R.B. Halliday (ANIC), Dr T. Kronestedt (NHRM), Dr B.Y. Main (BYM), Dr M. Malipatil (NTM), Ms C. McPhee and P. Lillywhite (NMV), Dr M. Moritz (ZMB), Dr G. Rack (ZMH), Dr R.R. Raven (QM), Dr F. Renner (SMNS) and Ms J. Waldock (WAM). Funding was provided by an Australian Biological Resources Study (ABRS) grant.

References

BONNET, P. 1957. 'Bibliographia Araneorum'. Vol. 2 (3). Douladoure, Toulouse.

HIRST, D. 1989. A revision of the genus *Pediana* Simon (Heteropodidae: Araneae) in Australia. *Rec. S. Aust. Mus.* 23(2): 113–126.

HIRST, D. 1990. A review of the genus *Isopeda* L. Koch (Heteropodidae: Araneae) in Australasia with descriptions of two new genera. *Rec. S. Aust. Mus.* 24(1): 11–26.

HOGG, H. R. 1896. Araneidae. *In* 'Rep. Horn Expedition to Central Australia', Pt 2 Zoology. Dulau and Co., London.

HOGG, H. R. 1902. On the Australasian spiders of the subfamily Sparassinae. *Proc. Zool. Soc. Lond.* 2: 414–466.

KARSCH, F. 1878. Exotisch-araneologisches. *Zeits. gesam. Naturw.* 51: 323–333, 771–826.

KOCH, L. 1867. Beschreibungen neuer Arachniden und Myriapoden. *Verh. zool.-bot. Ges. Wien.* 15: 857–892.

KOCH, L. 1875. 'Die Arachniden Australiens, nach der Natur beschrieben und abgebildet'. Bauer and Raspe, Nürnberg.

LATREILLE, P. A. 1804. Tableau méthodique des Insectes. *Nouv. Dict. Hist. Nat.* 24: 129–200.

MAIN, B. Y. 1985. Mygalomorphae. *In* D. W. Walton (Ed.). 'Zoological Catalogue of Australia'. Vol. 3. Australian Government Publishing Service, Canberra.

RAINBOW, W. J. 1911. A census of Australian Araneidae. *Rec. Aust. Mus.* 9: 107–319.

SIMON, E. 1880. Révision de la famille des Sparassidae (Arachnides). *Act. Soc. Linn. Bord.* 34: 223–351.

SIMON, E. 1892. 'Histoire naturelle des Araignées'. Vol. 2 (1). Roret, Paris.

SIMON, E. 1903. 'Histoire naturelle des Araignées'. Vol. 2 (4). Roret, Paris.

SIMON, E. 1908. Araneae. Première partie. *In* W. Michaelsen & R. Hartmeyer (Eds). *'Die Fauna Südwest-Australiens'.* Vol. 1 (12). Fischer, Jena.

THORELL, T. 1870. Araneae nonnullae Novae Hollandiae, descriptae. *Öfvers. Kong. Vet.-Akad. Förh.* 27 (4): 367–389.

THORELL, T. 1877. Studi sui ragni malesi e papuani, I. Ragni di Selebes raccolti nel 1874 dal Dott. O. Beccari. *Ann. Mus. Civ. Stor. Nat. Genova* 10: 341–634.

THORELL, T. 1881. Studi sui ragni malesi e papuani, III. Ragni dell'Austro-Malesia e del Capo York, conservati nel Museo Civico di Storia Naturale di Genova. *Ann. Mus. Civ. Stor. Nat. Genova* 17: vii–xxvii, 1–720.

THORELL, T. 1887. Viaggio di L. Fea in Birmania e regioni vicine, II. Primo saggio sui ragni birmani. *Ann. Mus. Civ. Stor. Nat. Genova* (2) 5: 5–417.

THORELL, T. 1892. Studi sui ragni malesi e papuani, IV (2). *Ann. Mus. Civ. Stor. Nat. Genova* 31: 1–490.

WALCKENAER, C. A. 1837. Histoire naturelle des Insectes. Aptères, Tome 1. Roret, Paris.

WHITE, J. 1790. 'Journal of a Voyage to New South Wales, with sixty-five plates of non-descript animals, birds, lizards, serpents, curious cones of trees and other natural productions'. Debrett, London.